

REMARKS

Claims 1-5, 7, 8, 10-19, 25-27 and 29 are in the application.

Claims 6, 9 and 20-24 have been canceled without prejudice. The Applicants reserve the right to reassert these claims in a continuation application.

Claims 1, 7, 10, 11, 15-17 and 27 have been amended to better claim the invention.

The Specification

In the Office Action, the Examiner has indicated that the docket number indicated on page 1 of the specification should be deleted as not relevant to the application. The Applicants respectfully request that the Examiner clarify where in the MPEP at § 608.01 that it states that a docket number is not permitted on the specification. On the contrary, the Applicants believe that a docket number is permissible on a specification. The Applicants direct the Examiner's attention to the MPEP § 602(IV)(B) where it indicates that a docket number on a specification as filed may be used to comply with the identification requirement of 37 C.F.R. § 1.63 to identify a specification to which an oath or declaration is directed. Moreover, the MPEP at § 502 indicates that a docket number used by the applicant to track the application should be used on correspondence to the Office in situations where the Office has not yet assigned an application number and confirmation number to the application.

For reasons set forth above, the Applicants respectfully believe that the docket number on page 1 of the specification is proper and relevant to the application, and should not have to be deleted from the specification.

§ 103 Rejections

In the Office Action, claims 1, 20 and 25 were rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent Number 5,828,662 to Jalali *et al.*, hereinafter "Jalali", in view of U.S. Patent Number 6,332,008 to Giallorenzi *et al.*, hereinafter "Giallorenzi"; claims 1, 8-10, 12, 17-21, 25-27 and 29 were rejected under 35 U.S.C. § 103 as being unpatentable over Jalali in view of U.S. Patent Number 6,388,997 to Scott, hereinafter "Scott"; claims 2-7, 11, 13-15 and 22-24 were rejected under 35 U.S.C. § 103 as being unpatentable over Jalali in view of Scott and

in further view of U.S. Patent Number 6,188,903 to Gardner *et al.*, hereinafter "Gardner"; and claim 16 was rejected under 35 U.S.C. § 103 as being unpatentable over Jalali in view of Scott and in further view of U.S. Patent Number 6,396,823 to Park *et al.*, hereinafter "Park".

Brief Description of Additional Cited Art

Giallorenzi describes a technique for synchronizing field units (subscribers) with a base station (central station). For each field unit, the base station employs three despreaders and a processor. The despreaders comprise an on-time despreaders, an early despreaders and a late despreaders which despread a received signal containing a spreading code assigned to the field unit using an on-time code, an early code and a late code, respectively. The output of the late despreaders is subtracted from the output of the early despreaders to produce an E-L output. The E-L output along with the output of the on-time despreaders is used by the processor to determine an estimate of an offset of the signal received from the user. See Giallorenzi, column 6, line 26 to column 7, line 63 and FIG. 2.

Scott describes a technique for reducing guard time overhead in a time division duplex communication system by actively adjusting reverse link transmission timing of a field unit's (user station's) transmissions to a base station. See Scott, Abstract. According to the technique, the base station sends a general polling message to the field unit. The field unit responds with a short reply message. The base station calculates the propagation delay between the base station and the field unit by measuring the round trip propagation delay from the end of the transmission of the general polling message to the receipt of the reply message. The base station then sends a timing adjustment command to the field unit to instruct the field unit to advance or retard its timing according to the calculated delay so as to minimize guard times between time slots. See Scott, Abstract and column 16, lines 21-45.

Differences Between the Claimed Invention and the Cited Art

With regards to claims 1-5, 7, 8 and 10-19, representative claim 1 recites:

1. A method for supporting wireless communications, the method comprising the steps of:
 - allocating a first channel to support message transmissions from a base station to multiple field units;

allocating a second channel to support message transmissions from the field units to the base station;

assigning time slots in the first and second channel for message transmissions between the base station and field units;

analyzing a marker contained in a message received in a time slot to determine a timing adjustment to be made at a field unit to synchronize the field unit with the base station; and

transmitting a feedback message containing the timing adjustment to the field unit.

The Applicants respectfully submit that Jalali, Giallorenzi, Scott, Park and Gardner taken either singly or in combination do not teach or suggest the Applicants' claimed combination of *analyzing a marker contained in a message received in a time slot to determine a timing adjustment to be made at a field unit* and *transmitting a feedback message containing the timing adjustment to the field unit.*

As noted in the Applicants' previous response, in Jalali, synchronization is performed at the base station and not at the field unit (mobile terminal). Thus, determining a timing adjustment to be made at the field unit would not make sense in Jalali because any adjustments made to synchronize the base station with the field unit are made at the base station and not at the field unit. Moreover, since timing adjustments are performed at the base station, the base station would not have any reason to send a message containing a timing adjustment to the field unit. Thus, Jalali does not disclose these claimed aspects of the Applicants' invention.

With regards to the Applicants' claimed marker, the Examiner seems to suggest that Jalali teaches this claimed aspect of the Applicants' invention at column 6, lines 28-52. The Applicants respectfully disagree.

At column 6, lines 28-52, Jalali describes a synchronous synchronization reservation (SSR) channel pseudo noise (PN) (SSRC-PN) code which is transmitted to a base station on an SSR channel by a field unit in a time slot assigned to the field unit. Several repetitions of the SSRC-PN code are transmitted by the field unit as a preamble. The preamble enables the base station to detect energy from the field unit so that it may acquire synchronization with the field unit. See Jalali, column 6, lines 28-52.

In contrast, the Applicants' claimed marker is an indicator of a reference point in a time slot. This reference point is used by a base station to identify a position of the signal being sent

from a field unit in the time slot. From this position, the base station may determine a timing adjustment value by, e.g., knowing when the marker should have occurred in the time slot and when the marker actually occurred in the time slot. Jalali's SSRC-PN code does not do this. Rather, it merely provides preamble information to a base station which enables the base station to (1) detect energy from the field unit and (2) synchronize with that unit. Jalali provides no teaching or suggestion that the preamble provides an indication of a reference point that is used to identify a position of a signal being sent in a time slot. Thus, Jalali's SSRC-PN code is not the same as the Applicants' marker.

With regards to the Applicants' analyzing and transmitting steps, the Examiner seems to suggest that Jalali teaches these steps at steps 103, 105 and 107 of FIG. 1. The Applicants respectfully disagree.

At these steps, Jalali describes a sequence of messages that are exchanged between a field unit and a base station to register the field unit with the base station. Specifically, the field unit generates and sends an origination message to the base station. In response to receiving the origination message, the base station generates and sends an assignment message to the field unit. The assignment message contains an SSR channel assignment and an assigned time slot on the SSR channel for use by the field unit. See Jalali, column 4, line 60 to column 5, line 10. Nowhere does Jalali suggest that the origination message is analyzed to determine a timing adjustment. This is because the origination message is used for purposes of initiating registration of the field unit and not for purposes of synchronizing the field unit with the base station. Moreover, nowhere does Jalali suggest that the assignment message contains timing adjustment information. This is because the assignment message is sent in response to origination message to notify the field unit of its SSR channel and time slot assignments. Therefore, steps 103, 105 and 107 in Jalali's FIG. 1 do not teach the Applicants' claimed *analyzing a marker contained in a message received in a time slot to determine a timing adjustment to be made at a field unit and transmitting a feedback message containing the timing adjustment to the field unit*.

Regarding Giallorenzi, first, Giallorenzi describes a technique for analyzing a signal received from a field unit (subscriber) to produce an estimate of an offset of a signal; however, the technique involves despreading a code assigned to the user using early, late and on-time despreaders and then generating an offset estimate based on the results of the despreading. Note

that the code that is despread is a code that is associated with the field unit that identifies the field unit. This is not the same as the Applicants' claimed marker which, as described above, is an indicator of a reference point in a time slot.

Second, although Giallorenzi does mention that by estimating an offset of a received signal and providing appropriate feedback to the field unit, it is possible to ask the field unit to adjust its transmit time or phase slightly to make sure the subscriber unit stays completely aligned, Giallorenzi fails to indicate what information is provided to the field unit as feedback, let alone provide details as to how the feedback is provided to the field unit. See Giallorenzi, column 12, lines 18-23. The Applicants, on the other hand, clearly claim a feedback message containing a timing adjustment that is sent to the field unit. The timing adjustment is an adjustment to be made at a field unit to synchronize the field unit with the base station. Further, the timing adjustment is provided to the field unit using a feed back message. Giallorenzi provides no teaching or suggestion that the feedback provided to a field unit is actually a feedback message let alone a feedback message containing a timing adjustment.

Regarding Scott, the Examiner has made no showing that Scott teaches or suggests the Applicants' claimed ***analyzing a marker contained in a message received in a time slot to determine a timing adjustment to be made at a field unit***. In fact, Scott does not analyze markers contained in messages received from a field unit to determine if a timing adjustment is to be made by the field unit. Rather, as noted above, Scott measures a propagation delay associated with the time it takes to receive a reply message from the field unit in response to a polling message to determine a timing adjustment for the field unit.

With regards to Park, Park describes a small and lightweight base station transceiver that utilizes a plurality of low-powered time division duplexing switches instead of a single high-powered time division duplexing switch. See Park, Abstract. Park is silent with regards to ***analyzing a marker contained in a message received in a time slot to determine a timing adjustment to be made at a field unit and transmitting a feedback message containing the timing adjustment to the field unit*** because Park does not deal with the details of synchronizing field units with base stations.

Gardner describes a time-sharing technique for frequency reuse in a cellular communications system. Base stations in the cellular system synchronize to a common time

base then share available frequencies via allocated time slots. See Gardner, column 5, lines 9-27. Gardner would have not need to teach or suggest the Applicants' claimed combination of *analyzing a marker contained in a message received in a time slot to determine a timing adjustment to be made at a field unit and transmitting a feedback message containing the timing adjustment to the field unit* because Gardner is concerned with synchronization between base stations and not between a base station and a field unit. In addition, in Gardner, synchronization is performed using a common time base and not by analyzing markers contained in messages at a base station and providing feedback messages containing timing adjustments to field units, as claimed by the Applicants.

Because of the absence of *analyzing a marker contained in a message received in a time slot to determine a timing adjustment to be made at a field unit and transmitting a feedback message containing the timing adjustment to the field unit* in Jalali, Giallorenzi, Scott, Park and Gardner, the Applicants respectfully submit that Jalali, Giallorenzi, Scott, Park and Gardner taken either singly or in combination do not render claims 1-5, 7, 8 and 10-19 of the Applicants' application obvious under 35 U.S.C. § 103. Therefore, the Applicants respectfully request that the above rejections of claims 1-5, 7, 8 and 10-19 be withdrawn.

With regards to claims 25-27 and 29, the MPEP at § 2142 states:

"To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)."

The Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of obviousness with respect to showing that Jalali, Giallorenzi, Scott, Park and Gardner taken either singly or in combination teach or suggest the Applicants' claimed *assigning a set of codes for use by a field unit, each code corresponding to a message that is transmitted in a time slot on the second channel, a code being transmitted by the field unit on the second channel to provide an indication to the base station* which is clearly recited in these claims.

In the Office Action, the Examiner fails to show where these cited references teach or suggest these claimed aspects of the Applicants' invention. The Examiner appears to discuss various claimed aspects of claim 1, however, the Examiner seems to have omitted the above claimed aspects of the Applicants' invention as recited in independent claim 25 from this discussion.

For reasons set forth above, the Applicants respectfully request that the above rejections to claims 25-27 and 29 be withdrawn.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

By Michael J. Badzinski
Michael J. Badzinski
Registration No. 51,425
Telephone: (978) 341-0036
Facsimile: (978) 341-0136

Concord, MA 01742-9133

Dated: 7/11/06